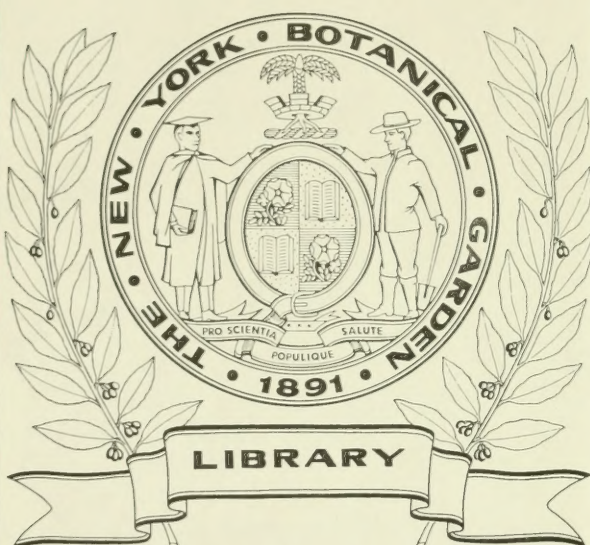


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Vol. 24
1960-64



ADDISONIA

COLORED ILLUSTRATIONS

AND

POPULAR DESCRIPTIONS

OF

PLANTS

VOLUME 24

1960-1964

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

(ADDISON BROWN FUND)

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"the income and accumulations from which shall be applied to the founding and publication, as soon as practicable, and to the maintenance (aided by subscriptions therefor), of a high-class magazine bearing my name, devoted exclusively to the illustration by colored plates of the plants of the United States and its territorial possessions, and of other plants flowering in said Garden or its conservatories; with suitable descriptions in popular language, and any desirable notes and synonymy, and a brief statement of the known properties and uses of the plants illustrated."

The preparation and publication of the work has been referred to Mr. Edward Johnston Alexander, Associate Curator.

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MALUS BACCATA

MALUS BACCATA

*Siberian Crab-apple**Native of Eastern Asia*

(Plate 769)

Family MALACEAE

APPLE Family

Pyrus baccata L. Mant., 1:75. 1767.*Malus baccata* Borkh. Handb. Forstbot. 2:1280. 1800-1803.

Whether the flowers be white or pink, an apple tree in bloom is one of the glories of nature. And, in late summer, when its branches are covered with red or yellow fruits, it is even more spectacular, for then it not only feasts the eye but gives promise of applesauce, cider, and jelly to feast the inner man. The small-fruited Siberian and Chinese crab-apples do not offer much satisfaction in the eating but more than make up for this deficiency in the taste of their jelly, which is more aromatic than that of ordinary apples.

When in bloom, the crab-apples are one of the most decorative of spring-flowering trees, for their branches are usually smothered under a canopy of white or pink, or sometimes both colors in combination. They are not as large as ordinary apple trees and therefore admirably suited for small places where they give two periods of display, flower and fruit. Our present subject is merely one of a large group of species and hybrids; the form here illustrated has somewhat larger fruits than is usual.

The Siberian crab-apple is a round-headed tree to forty-five feet in height. The bark of the trunk and branches is brown and rather smooth but becomes somewhat scaly in age; the twigs are slender and smooth, light yellow-brown. The leaves are an inch and a half to three inches long, the blades elliptic to ovate in outline, broadly wedge-shaped or rounded at the base, with a somewhat tapered tip, slightly hairy on the underside when young; the petioles an inch to an inch and a half long. The flowers are an inch and a half across, white, on slender stalks one to two inches long. The petals are short-clawed, broadly elliptic to ovate, with blunt tips. The five sepals are glabrous, lance-shaped, and long-pointed. The numerous stamens have white filaments and light yellow anthers. The inferior ovary is three to five-celled, the three to five styles connate at the base. The fruit is a nearly round pome, red or yellow, three-eighths to three-quarters of an inch in diameter, the calyx deciduous.

EDWARD J. ALEXANDER

EXPANATION OF PLATE. Fig. 1.—A flowering spray. Fig. 2.—A fruiting spray.



CAMPANULA COCHLEARIFOLIA

CAMPANULA COCHLEARIFOLIA

(Plate 770)

Native of Mountains of Europe

Family CAMPANULACEAE

BELLFLOWER Family

Campanula cochlearifolia Lam. Encyc. 1:578. 1785.

Among those plants which form the backbone material for rock gardens, many species of *Campanula* rate very high, both for their easy growing habits and their abundance of bloom. After the main period of spring bloom is over, which consists mostly of pink, white, and yellow-flowered plants, the show is taken over by the blues of veronica and campanula with an admixture of other colors.

Our present subject is one of the most satisfactory for small rock gardens because of its low stature and neat habit of growth. It grows well in any good loamy soil and is usually fairly long-lived in both the blue- and the white-flowered forms, although the white one, as with most albinos, is somewhat the more delicate.

Campanula cochlearifolia is a loosely tufted, glabrous, perennial herb up to eight inches in height. The basal leaves are about one-half inch broad, heart-shaped or truncate at the base, the deep green blade not at all tapered into the long leaf-stalk. The stem leaves vary from broad lance-shaped near the ground to narrowly so higher up the stem, all somewhat toothed. The flowers are few in the inflorescence, blue-violet (white in albinos), one-half to three-fourths of an inch long, spreading or nodding, narrow bell-shaped, with broad, shallow lobes. The five calyx lobes are much shorter than the corolla, spreading, linear, with a short, sharp tip. The five stamens are attached to the base of the calyx-rim; the filaments dilated at the base. The long style protrudes from the corolla, the stigmas spreading. The fruit is a small, dry capsule, opening at the apex to discharge the numerous, tiny seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Flowering stem. Fig. 2.—A sterile leaf rosette.



VANDA LAMELLATA

VANDA LAMELLATA

Native of the Philippine Islands

(Plate 771)

Family ORCHIDACEAE

ORCHID Family

Vanda lamellata Lindl. Bot. Reg. 24 (misc.):66. 1838.

For ease of cultivation, handsome habit and foliage, the species of *Vanda* have few rivals among the orchids. That they have beautiful flowers is evident for this is the genus that contains the famous blue orchids of Burma, *Vanda caerulea* and *V. caerulescens*, the Waling-Waling (*V. sanderiana*) of the Philippines, and the beautifully colored *V. teres* of Upper Burma and Himalaya, so popularly grown in Hawaii. Probably the most frequently grown in the United States is *V. tricolor* and its variety *suavis*, both of Java.

The species of *Vanda*, except for two which are widespread over India, are highly local in their distribution. An oddity also is that one of the localized vandas always occurs in an area where a species of *Aërides* abounds. So it is that near Manila, in the hot damp valleys, on forest trees, where *Aërides quinquevulnera* is plentiful, our present subject also grows. *Vanda lamellata* was originally sent from there to England in 1838 by Hugh Cuming, botanical collector, then in the Philippine Islands.

Vanda is a Sanskrit word applied in India to species of *Vanda* and *Aërides*, and certain other epiphytic and parasitic plants.

Vanda lamellata is an epiphytic plant, with a stout leafy stem a foot or more tall. The leaves are up to fifteen inches long, imbricated at the conduplicate base, flattened above and sharply keeled with an obliquely bidentate apex. The inflorescence is upright, longer than the leaves, and bears numerous flowers one and a half to two inches across. The sepals and petals are oblong-spatulate, the upper sepal and two lateral petals light yellow with a few chestnut-brown blotches; the two lateral sepals are subfalcate, down-curved and so heavily blotched with chestnut-brown as to appear only light yellow-margined. The lip is shorter than the sepals and petals, prolonged into a short pinkish white spur at the base, three-lobed; the two lateral lobes appear as short, round, erect whitish auricles; the middle lobe oblong, notched at the apex, pale pinkish lilac with light yellow margin and apex, with two longitudinal whitish ridges. The short column is whitish pink. The anther is two-celled, the two pollinia at the apex of a broad and upwardly dilated stalk.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Stem and portion of an inflorescence. Fig. 2.—Lip and column. Fig. 3.—Antheridium $\times 4$. Fig. 4.—Pollinia $\times 4$.



CRATAEGUS CHRYSOCARPA PHOENICEA

CRATAEGUS CHRYSOCARPA PHOENICEA

Native of Northeastern United States

Family MALACEAE

APPLE Family

Crataegus chrysocarpa var. *phoenicea* Palmer in Dole, Fl. Vermont. ed.3. 152. 1937.

Thorny and intricately branched as they are, hawthorns are a welcome and protective cover for birds and small animals and, in addition, furnish food in the fall and winter months. The fruits, called haws or pig-apples, are not used for food by humans, except by small boys and sometimes for jelly which has a flavor all its own but is reminiscent of apples, which are, of course, their near relatives.

With their masses of white bloom and decorative fruits, hawthorns are fit subjects for ornamental planting. Their neat habit of growth makes them satisfactory as lawn or shrubbery specimens.

More than a thousand species have been named, mostly American, some of doubtful specific rank, and but few of them identifiable as to exact name, by any but extreme specialists, for their differences are slight and they hybridize freely.

All hawthorns are of easy growth in any soil, and they are easily transplanted from the wild, especially when small. Propagation from seed is slow, as seed usually takes two years to germinate and must be stratified for complete success. Individual choice forms are best propagated by grafting.

Crataegus chrysocarpa phoenicea is an intricately branched shrub or small tree to eighteen or twenty feet, with rather stout and thorny gray-brown branches, the trunk gray-scaly in age. The leaves are broad ovate to sub-orbicular in outline, with three or four pairs of short lobes, the margin all finely toothed except near the broad base, the lower teeth gland-tipped, yellow-green, one to two inches long, with only a few short hairs on the upper surface of young leaves. The flowers are white, one-half to three-fourths of an inch across, borne in loose corymbs. The five calyx lobes are narrowly lance-shaped, with glandular teeth. The eight to ten stamens have white filaments and roseate anthers. The fruit is a sub-globose to oblong pome about one-half inch long, dark red, with three or four bony nutlets.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering twig. Fig. 2.—A fruiting branch.



CAMPANULA LATIFOLIA MACRANTHA

CAMPANULA LATIFOLIA MACRANTHA

Native of Russia

Family CAMPANULACEAE

BELLFLOWER Family

Campanula latifolia var. *macrantha* Sims, Bot. Mag. pl. 2553. 1825.

The large-growing kinds of campanula have long been inhabitants of gardens. Those which are perennial are very satisfactory as perennial border or garden plants because of their ease of culture and their long life. Once planted, they increase in size and in abundance of flowers year after year and always make a beautiful splash of violet-blue when in bloom. Some are inclined to spread by runners and may become invasive, but those that make more compact clumps with short runners are very desirable. The broad-leaved bellflower is one of the more compact ones, but it does not appear to be very well known. Since it grows easily in any good garden soil, it is really deserving of more popularity. Our present subject, with flowers twice the size of those of the species, is especially showy and worthy of a place in the perennial garden.

The broad-leaved bellflower is a perennial herb two to four feet tall; the stems are little- if at all branched and sparsely hairy. The leaves are deep green, numerous on the stem. The blades of the lower leaves are nearly orbicular, to two and a half inches broad, and from two to six inches long, with a long, wavy marginal stalk; the upper ones progressively smaller and narrower; all rough-surfaced and hairy, with blunt irregular teeth. The flowers are erect or ascending in a short, leafy, terminal raceme, about one and a quarter inches long, or two to two and a quarter inches long in the variety here pictured, bright blue-violet; the spreading lobes one-third the length of the narrowly bell-shaped corolla. The narrow linear calyx-lobes are a half-inch long and pressed against the corolla. The stamens have a hairy-margined and dilated base to the filaments and are much shorter than the corolla. The style is about two-thirds the length of the corolla with three spreading stigmas at its apex. The fruit is a nearly round dry capsule about a half-inch across, opening by basal pores.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Top of a flowering stem. Fig. 2.—A cauline leaf. Fig. 3.—A ripe capsule.



KLEINIA RADICANS

KLEINIA RADICANS

Native of South Africa

Family CARDUACEAE

THISTLE Family

Kleinia radicans Haw. Till. Phil. Mag. 62:381. 1823.*Cacalia radicans* L.f. Suppl. 354. 1781.*Senecio radicans* Schulz-Bip. Flora 28:499. 1845.

Because of the present rise in popularity of succulent plants, an increasing number of such plants from the arid and semiarid regions of the world are being introduced into cultivation. From these, those who possess a greenhouse or indoor gardening facilities may make their choice, depending upon personal likes and available space. All types of growth, large and small, are represented: from tiny plants which may be grown several in a pot to large shrubs and trailing kinds, with a few climbers thrown in for good measure. Members of the genus *Kleinia* that contains shrubs, small pot plants, and trailers, such as our present subject, are rather different in appearance from the more commonly grown kinds and, with their feather-duster type of flowers, are oddly attractive when in bloom. The creeping types are best grown in hanging baskets or suspended pots. *Kleinias* are mostly winter-growing plants; some of them are completely dormant in our summer, while some will grow as long as they are kept regularly watered. All are native to South Africa and, or, to adjacent regions.

Kleinia radicans is a completely smooth succulent herb, with its stem creeping and rooting on the underside. The entire plant is covered with a whitish coating which gives a bluish appearance but is easily rubbed off. The leaves are one-half to three-fourths of an inch long, elliptical with a sharp tip and tapered at the base into a short thick stalk, laterally compressed, the upper edge deep green and translucent, without the white coating. The inflorescences are terminal, erect, on stalks three inches or more long, each stalk forked, with a linear bract at the base of each fork, the flower stalks one to two inches long above the fork. The involucre are about a half inch long, composed of numerous narrow linear, connate bracts, each bract with a purple margin. The florets are five-eighths of an inch long, white with a slender greenish tube abruptly inflated into a funnelform throat, with five lance-shaped and recurved lobes. The stamens are bright red-brown, connate into a ring around the long slender style that has two recurved stigmas with short-conical tips. The fruit is an achene crowned with a persistent pappus of numerous slender, silky hairs.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Ends of creeping stems bearing leaves and flowers. Fig. 2.—A floret $\times 1\frac{1}{2}$.



MALVAVISCUS MOLLIS

MALVAVISCUS MOLLIS

Native of Mexico

Family MALVACEAE

MALLOW Family

Malvaviscus mollis DC. Prodr. 1:445. 1824.

In the Mallow Family are many popular garden plants, such as hollyhocks, lavatera, muskmallow, and hibiscus; in this latter one the ever-popular rose-of-Sharon, the native rose-mallow, and the beautiful hibiscus of the tropics. There are also some economic subjects, particularly cotton, okra, and the marsh-mallow so loved by those with a "sweet tooth." There are several greenhouse subjects such as *Abutilon* and related plants, one of which is the genus *Malvaviscus*, with its tubular, non-opening, fuchsia-like flowers of such odd petal-structure. *Malvaviscus penduliflorus*, a very popular dooryard plant in our southeastern states, is the most ornamental of the genus; but there are some lesser ones with attractive foliage, though smaller flowers, which are pleasing in some ways. They are small shrubs and usually have numerous red flowers half hidden in the foliage, as does our present subject. They are not popular except as foliage plants, or for shrubby plantings in Florida and southern California. Although they grow well in any good garden loam, they are not recommended except for the above-mentioned use.

Malvaviscus mollis is a low shrub sometimes to five or six feet tall, covered in all its parts with soft velvety hairs. The leaves are up to four inches long, and one to three inches wide, the stalks one to one and a half inches long, the blades very broadly oval or orbicular-oval in outline with rounded teeth on the margins and often with two broad, shallow lobes. The flowers are borne in the leaf-axils and are one to one and one-half inches long. The calyx is broad tubular, about one-half inch long or less, surrounded by an involucre of seven to twelve linear bracts of about the same length. The bright red corolla does not open, the petals being held upright by interlocking basal auricles. The blue-purple anthers are crowded on a long stalk-like tube which surrounds the long style topped by the several radially spreading stigmas, the whole of which protrudes well beyond the corolla. The fruit consists of several fleshy, one-seeded carpels united into a berry-like body that eventually becomes dry and separates into its component parts.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Top of a flowering branch. Fig. 2.—A petal. Fig. 3.—Androecium and Gynoecium. Fig. 4.—A ripe fruit.



EUONYMUS BUNGEANUS

EUONYMUS BUNGEANUS

(Plate 776)

Native of Northeastern Asia

Family CELASTRACEAE

STAFF-TREE Family

Euonymus bungeanus Maxim. Prim. Fl. Amur. 470. 1859.

Shrubs of the spindle-tree relationship are extremely popular for dooryard and shrub plantings, some for their evergreen foliage, and some for their highly ornamental red, orange, or pink fruits. A few are fine in both leaf and fruit, but those are the kinds more suited for southern climes. Of the deciduous sorts, the common spindle-tree of Europe, from whose wood spindles were once made, was formerly frequently planted in this country, and it is sometimes found as an escape. Our present subject is one of its Chinese relatives, differing in its looser habit of growth, its purple stamens, and its more pink, long-persistent fruit. It is not one of the more attractive kinds, because its loose habit of growth is not too desirable, and its pale-colored fruits are far surpassed by the scarlet and crimson fruits of some other Chinese species. At least one of these species has foliage which turns beautifully red in the autumn, while the foliage of *E. bungeanus* merely yellows before falling.

Euonymus bungeanus is a loosely branched shrub or small tree to fifteen feet high with slender brown branches. The leaves are bright green, elliptic-ovate to elliptic-lance-shaped in outline, two to four inches long, tapered to a stalk one-fourth to one-half inch long, and with a long-tapered tip. The flowers are greenish yellow, about one-half inch across, in three- to seven-flowered cymes on stalks one-half to three-quarters of an inch long. The calyx is minute; the four petals oblong. The stamens are inserted on a disk which is connate with the ovary, the anthers dark purple. The fruit is deeply four-lobed, dull pinkish white, about one-half inch in diameter; the seeds white or pinkish with an orange aril.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A twig bearing flowers and leaves. Fig. 2.—A flower
× 3. Fig. 3.—A fruiting branch.

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ALLIUM CERNUUM

ALLIUM CERNUUM

*Nodding Onion**Native of Eastern and Central United States*

Family ALLIACEAE

ONION Family

Allium cernuum Roth Arch. Bot. Römer 1 (3):40. 1789.

Summer visitors in the Southern Appalachian region are frequently attracted by the misty patches of pink at the open edge of woodlands or on roadside cuts, banks, and open ledges. Upon closer observation, these are seen to be colonies of a wild onion that has nodding heads of flowers like bursting skyrockets. It ranges in nature all over the eastern United States and into the Rocky Mountains, but in the western part of its range so many species of *Allium* rival it in showiness that it is not as outstanding as in the aforementioned area where it has no rival. There it stands out with an airy beauty of its own. It is a fairly popular plant for large rock gardens where it shows to perfection on rocky banks. Since it grows easily in any soil and multiplies rapidly, there is no problem connected with its growing; in fact, it sometimes needs to be controlled in its spreading. As the color varies individually from dull white through several shades of pink and into a light purple, it is usually possible to find a shade to suit one's taste, and the colonies of color may be kept clean by preventing seeding.

The nodding onion is a perennial, scapose herb, the leaves and scape arising from a membranous-coated, elongate bulb. The leaves are six to eight inches long, narrowly strap-like, flat and of soft texture, about one-fourth of an inch wide, bright bluish green. The scapes are usually eight to twelve inches tall (occasionally to two feet), sharply four-edged, downward curved at the summit. The umbel of flowers is at first enclosed in a two-valved, whitish, deciduous spathe. The somewhat bell-shaped flowers are numerous, borne on wide-spreading pedicels one to one and a half inches long. The six parts of the perianth are about one-fourth of an inch long, rounded or bluntish at the tip, pink or purplish (rarely whitish) in color. The six stamens are about one-half inch long, much exserted from the perianth, the filaments white or pinkish, the anthers brown. The style is longer than the stamens, purplish or pink, the stigma slightly three-lobed. The ovary is three-lobed, each lobe with two wing-like crests. The fruit is a three-lobed and three-valved loculicidal capsule, six crested, each locule containing one to three irregularly shaped black seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—An inflorescence. Fig. 2.—Leaves. Fig. 3.—A bulb and the base of leaves and inflorescence scape. Fig. 4.—Gynoecium and Androecium $\times 5$. Fig. 5.—Gynoecium and Androecium showing 2 kinds of stamens $\times 5$.



PHILADELPHUS GORDONIANUS COLUMBIANUS

PHILADELPHUS GORDONIANUS COLUMBIANUS

Columbian Mock-Orange

Native of Northwestern United States and Adjacent Canada

Family HYDRANGEACEAE

HYDRANGEA Family

Philadelphus gordonianus var. *columbianus* Rehder, Jour. Arnold Arb. 1: 196. 1926.

Mock-oranges have long been popular shrubs for home plantings, as their wealth of fragrant white flowers, some double, some single, endear them to many old timers who can still recall grandmother's yard. In the southeastern states they are commonly known as syringa, a confusion to the botanically minded, since that is the technical name of the lilac. Most of the generally grown kinds are hybrids, some old, some new, and since the planted ones hybridize so freely, there is scarcely a true species in cultivation, and certain identification of cultivated plants is nearly impossible.

Our present subject is one of the less ornamental ones because of its small flowers. Although these flowers are very profuse, they cannot compare with the Lemoine Hybrids usually grown. *Philadelphus gordonianus columbianus* is native on rocky bluffs and riverbanks in the northwestern states.

The Columbian mock-orange is a shrub to twelve feet high; its upright branches are slightly hairy when young and clothed with yellow-brown bark. The bark of the older branches and stems is gray and not exfoliating. The leaves are opposite, dull green, ovate in outline, to one and a half inches long, slightly hairy on both surfaces, rounded or slightly heart-shaped at the base and tapered at the tip, the margins smooth or with a few shallow teeth. The slightly fragrant flowers are borne three to nine in a dense raceme. The sepals are about one-fourth of an inch long, narrowly ovate. The petals are white, oblong-ovate, about five-eighths of an inch long. The numerous stamens have white filaments and light yellow anthers. The ovary is about two-thirds inferior, four-celled, the four styles united about half their length. The fruit is a dry brown capsule about one-fourth of an inch long, filled with small chaff-like seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A ripened fruit with calyx and pistil still attached. Fig. 3.—An opened capsule.



PENSTEMON LAXIFLORUS

PENSTEMON LAXIFLORUS

(Plate 779)

Native of Southcentral United States

Family SCROPHULARIACEAE

FIGWORT Family

Penstemon laxiflorus Pennell, Phila. Acad. Sci. Monogr. 1:330. 1935.

The penstemons are a peculiarly American group of plants, being in nature confined to North and Central America, with but one of the two hundred and fifty known species extending into northeastern Asia. The species from the West Coast and the Rocky Mountains are by far the most showy of the genus, but most of them are not reliably hardy in eastern gardens. One or two Mexican species have entered into the parentage of some beautiful garden hybrids which are justly popular in England, but all too frequently they winterkill in our eastern gardens and are therefore best treated as tender and not long-lived perennials. Our present subject is one of the less showy ones, but more reliably hardy than the westerners. It is, as is the case with the eastern species, smaller flowered and not so brightly colored; but being native in open woodlands and on prairies of the southcentral states, it is better adapted to our climate and quite satisfactory as an inhabitant of the more sunny portion of the wild garden or even at the edge of woodlands.

Penstemon laxiflorus is a perennial herb, sixteen to thirty inches tall; its stem, branches, and leaves are covered with a fine down. The stem-leaves are narrow lance-shaped, sharply toothed, one to two inches long. The inflorescence is a loose panicle, with three to six branches, each bearing a fascicle of five to seven flowers. The five calyx-lobes are spreading, about one-eighth of an inch long. The corolla is about three-fourths of an inch long, pale pinkish purple with fine purple lines inside, having a slender tube and a slightly inflated throat nearly closed by the two ridges of the lower lip that is covered with yellow hairs at the base of the lower and longer projecting corolla lobes. The four pollen-bearing stamens are in two pairs, the anther sacs wide-spreading and opening up their entire length. The sterile stamen is club-shaped and covered with yellow hairs, longer than the fertile ones and extending into the mouth of the corolla tube. The pistil is long and slender, tipped with a minutely capitate stigma. The fruit is a dry capsule about three-eighths of an inch long, conicovoid, filled with irregularly angled, small, tannish-colored seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Top of a flowering stem. Fig. 2.—Cauline leaves. Fig. 3.—Corolla, laid open $\times 2$. Fig. 4.—The sterile stamen $\times 5$. Fig. 5.—Mature fruit in calyx.



ACOKANTHERA VENENATA

ACOKANTHERA VENENATA

(Plate 780)

*Bushman's Poison**Native of South Africa*

Family APOCYNACEAE

DOGBANE Family

Acokanthera venenata G. Don, Gen. Syst. 4:485. 1837.

Because of its fragrant winter bloom, the bushman's-poison and its sister species, the winter-sweet, have long been greenhouse inhabitants, where their dark green, leathery foliage and freely produced clusters of white flowers can always be depended upon during the gray days of the year. This habit of flowering in our winter which is, of course, summer in South Africa, is an apparent oddity of many South African plants. Seemingly they should have reversed their period of bloom to correspond with the period of longer days and stronger sunlight that would be in their native land, but it appears that the time lapse has more influence than light upon these particular plants.

Acokantheras are propagated by seed, if available, or by cuttings taken in the spring. They thrive best in a rich loam and leafmold and under warmhouse conditions.

All parts of the plants contain the glucoside acokantherin, which possesses powerful toxic properties and has an action similar to digitalis with minor differences. According to Thunberg, a decoction of the bark reduced to a jelly was used by the aborigines for poisoning their arrows. The plant is dangerously poisonous, especially since the fruits resemble small plums and might sometimes be eaten by children, with fatal results.

The bushman's-poison is a shrub, sometimes tree-like, to twelve or fourteen feet tall; the stem and branches are covered with a close-fitting brown bark. The leaves are a dark glossy green, thick and leathery, opposite, ovate or elliptic, up to four inches long and to two inches wide, narrowed at the base into a short thick stalk, the tip acute, sometimes abruptly so. The flowers are waxy white (rarely pink) and fragrant, one-half to three-fourths of an inch long. The calyx consists of five small, triangular and acute sepals. The corolla is salverform, with a narrowly cylindrical tube and five spreading, pointed lobes overlapping to the left. The stamens are inserted just below the mouth of the corolla tube; the filaments are very short, sparingly hairy, the yellowish brown anthers with a tuft of hairs at the tip. The ellipsoid ovary is terminated by a long slender style with a large club-shaped stigma. The fruit is a large, black-purple, drupe-like berry, an inch or more long and nearly as thick, containing two large seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering twig. Fig. 2.—Corolla, laid open $\times 2$. Fig. 3.—A stamen $\times 8$. Fig. 4.—The pistil $\times 2$. Fig. 5.—Fruits.



CATTELEYA AMETHYSTOGLOSSA ROSEA

CATTLEYA AMETHYSTOGLOSSA ROSEA

*Amethystine Cattleya**Native of Brazil*

Family ORCHIDACEAE

ORCHID Family

Cattleya amethystoglossa var. *rosea* Rolf, *Lindenia* 8:pl.375. 1892.

In the popular conception, the species of *Cattleya* are the flowers usually thought of as "orchids," since they are the ones which are most frequently used in the florist's trade. Actually they represent only a very small fraction of the Orchid Family of plants; there are about fifty species of *Cattleya*, a minor number in a family of over twenty thousand species. The cattleyas are confined in nature to the American tropics but are among the most commonly cultivated by commercial growers; there are in the florist's trade hundreds of different hybrids, mostly of great beauty.

Our present subject is one of the less important kinds, rather infrequently grown except by "collectors," but it has a beauty of its own which makes it a worthwhile ornament in any collection of glasshouse plants. The rosy-lipped form is especially attractive. It flowers in the spring, and the blossoms last several weeks in full beauty.

The amethystine cattleya is a tufted epiphytic plant with pseudobulbs up to two or three feet long, and bearing at the apex two or occasionally three dark green, leathery, strap-shaped leaves up to eight inches long. The flowers are borne five or six together in a terminal cluster. They are three to four inches across, the sepals and lateral petals oblong-elliptic, light rose-purple with darker blotchings; the lip with its two lateral lobes pale pinkish purple, the middle lobe deep reddish amethyst, broader than long and undulate-crisped on the margin. The column is whitish, its upper margin purple-edged, the antheridium light rose-purple, bearing four pollinia.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Portion of inflorescence and leaves. Fig. 2.—Leaf tip. Fig. 3.—Column, front and side view. Fig. 4.—Antheridium and pollinia $\times 4$. Fig. 5.—Entire plant, reduced.



OXALIS HIRTA

OXALIS HIRTA

(Plate 782)

Native of South Africa

Family OXALIDACEAE

WOOD-SORREL Family

Oxalis hirta L. Sp. Pl. 434. 1753.

The species of *Oxalis*, often called wood-sorrel, of temperate regions are a weedy lot, most of them outright pests in garden or greenhouse; but those of the warmer parts of the world are highly ornamental and popular as pot plants, or planted out in warmer sections such as southern United States. Some of the truly tropical ones are small shrubs, and some are succulent, but the majority grow from bulbs. Of these bulbous ones, our present subject is both an unusual and attractive one, with its caulescent habit and trifoliolate leaves similar to those of some legumes. It grows and flowers in winter in the northern hemisphere and so requires greenhouse protection, under which it may be grown as are other South African bulbs; started in late fall and, after flowering is over, usually in April or May, given a completely dry rest until the following November, when watering will start new growth. It might be well to take up the bulbs in October, allow them to air for a few days, and then repot them into fresh soil. This will permit separating of any multiplications of the bulbs as well as giving a fresh food supply.

Oxalis hirta is a caulescent herb arising from a scaly, nearly globular bulb three-quarters to one inch in diameter. The stem is few-branched, up to a foot tall, downy but sometimes with longer hairs, and has short, sharp scales near the base. The alternate leaves are stalkless, rather close-set on the stems and branches, three foliate, the leaflets hairy, one-fourth to three-quarters of an inch long, varying from linear to wedge-shaped, bright green. The flowers, arising from the leaf-axils, are borne singly on two-bracted, downy stalks two to three inches long. The five calyx-lobes are about one-fourth of an inch long, lance-shaped or linear, and silky-hairy. The corolla is rotate, nearly an inch long, the tube bright yellow, the limb bright rose-purple, with five blunt lobes. The ten stamens are in two sets of five each, alternately long and short, the longer ones about one-fourth of an inch long, the shorter ones half that length. The gynoecium consists of five carpels, the styles about one-half of an inch long, each with a capitate stigma. The fruit is a five-angled capsule, elastically splitting and discharging the small brown seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering stem. Fig. 2.—Base of stem and the bulb. Fig. 3.—Corolla, laid open. Fig 4.—Gynoecium and androecium $\times 2$. Fig. 5.—Gynoecium $\times 2$.



LACHNANTHES TINCTORIA

LACHNANTHES TINCTORIA

(Plate 783)

Red-root

Native of Eastern United States

Family HAEMODORACEAE

BLOODWORT Family

Anonymos tinctoria Walt. Fl. Carol. 68. 1788.*Gyrotheca tinctoria* Salisb. Trans. Hort. Soc. 1:327. 1812.*Lachnanthes tinctoria* Ell. Sk. Bot. S.C. & Ga. 1:47. Nom. cons.

On the savannas and in the swamplands of the eastern coastal plain, one of the more frequently seen plants is the red-root, which often takes over large tracts with its spreading root-system and in the commercial cranberry-bogs becomes one of the most pestiferous of weeds. There is nothing particularly attractive about it, for it merely forms blobs of a dull, dirty yellowish color on the landscape. It is chiefly of interest to the botanist, as being the sole representative in the north temperate zone of a family mostly restricted to the tropics and to the southern hemisphere, and possibly having some ancestral connection with the Amaryllidaceae.

The name *Lachnanthes* is from the Greek words for wool and blossom, in allusion to the woolly appearance of the flower clusters.

The red-root is a perennial herb with fibrous roots and long slender stolons with bright red juice. The basal leaves are sword-shaped and much flattened, three to nine inches long and sharp-pointed, bright yellow-green; the few stem leaves are two to four inches long and similar in form. The flowering stem is woolly-hairy above the basal part and terminated by a dense compound cyme of dingy yellow flowers. The perianth is about three-eighths of an inch long, consisting of six hairy-woolly segments, the three inner ones slightly the larger. The three stamens are opposite the three larger segments and exserted one-fourth of an inch beyond them. The ovary is adherent to the base of the perianth, with a long slender style which is bent to one side. The fruit is a three-celled nearly globular capsule, with a few flat, rounded seeds in each cell attached at their middle to the fleshy seed-cushion.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Top of a flowering stem. Fig. 2.—Stem and leaf base, and roots. Fig. 3.—A flower $\times 2$. Fig. 4.—Fruit concealed in calyx. Fig. 5.—Fruit with calyx removed.



TUPISTRA TUPISTROIDES

TUPISTRA TUPISTROIDES

(Plate 784)

Native of the Khasia Hills in Eastern India
at 2,000 - 4,000 feet altitude

Family LILIACEAE

LILY Family

Macrostigma tupistroides Kunth, Enum. 5:319. 1850.
Tupistra macrostigma Baker, Bot. Mag. pl. 6280. 1877.
Tupistra tupistroides Dandy, Jour Bot. 70:329. 1932.

The *Aspidistra* tribe of the Lily Family contains a strange-looking assemblage of genera, all natives of the Indo-Malayan region and Japan, with only one of them well known in cultivation. One of the tribe, *Rohdea japonica*, is highly valued in its native land, where many variations are grown, some of which sell at fabulous prices. They are, however, little appreciated elsewhere. *Aspidistra*, on the other hand, is the well-known member and, though now in disfavor, was formerly a plant that no home was without. Its toughness as a house plant is too well known to dwell on here. The *tupistras*, natives of the forests of eastern Himalaya and Burma, closely resemble the *aspidistra*, when not in flower and may be grown under similar conditions. Their narrower leaves and surface-creeping rootstock serve as differentiating characters on the rare occasions when one may see a plant. They were grown for many years in Europe before their native home was known, and all were thought to represent a single species, which has now been separated into five or six species, differing in whether the spike of flowers is upright or drooping, densely- or loosely-flowered, and in the size of the stigma.

Tupistra tupistroides is a rhizomatous perennial herb, with a short, thick, much-branched, creeping rootstock. The flower-bearing tufts usually consist of two normal leaves and a flower stalk, all accompanied by several papery, brown, sheathing leaves one to four inches long, lanceolate and acute with dilated bases; these sheathing leaves eventually break up into persistent fibres. The dark green, papery-textured leaves are eighteen inches to two or more feet long and one to three inches wide, the petiole dilated at the base and channeled down the face. The peduncle is dull green, heavily tinged with brown-purple, two to four inches long, erect-arching, and strongly recurved into a drooping, lax flower spike two to three inches long, each flower subtended by a triangular, persistent bract. The perianth is campanulate, about one-half inch across; the broadly triangular, reflexed segments dull madder-purple; the tube whitish with dull madder-purple lines down the inner face from the sinuses between the lobes. The six stamens are sessile

or nearly so, with yellow anthers, inserted just below the mouth of the tube near the base of the lobes. The pistil consists of a minute, globose ovary and a pale pinkish and fleshy, cylindrical style, reaching to the mouth of the perianth tube, where the orifice is almost closed by the large, peltate, fleshy, convex, and six-lobed stigma.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Base of a flowering tuft with the inflorescence. Fig. 2.—A leaf. Fig. 3.—Two buds. Fig. 4.—Perianth, laid open. Fig. 5.—The pistil.

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"the income and accumulations from which shall be applied to the founding and publication, as soon as practicable, and to the maintenance (aided by subscriptions therefor), of a high-class magazine bearing my name, devoted exclusively to the illustration by colored plates of the plants of the United States and its territorial possessions, and of other plants flowering in said Garden or its conservatories; with suitable descriptions in popular language, and any desirable notes and synonymy, and a brief statement of the known properties and uses of the plants illustrated."

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ALOË CILIARIS

ALOË CILIARIS

(Plate 785)

*Climbing Aloe**Native of South Africa*

Family LILIACEAE

LILY Family

Aloë ciliaris Haworth, Phil. Mag. et Jour. 281. 1825.

South Africa is the home of many of the showy succulent plants of our greenhouses, and of gardens in the mild climate areas. By far the most spectacular of these are the species of Aloë, especially when in flower. Of the two hundred or so different kinds, there are to be found many sizes of plant, from small ones to fifty-foot, massive trees, with some creeping types and a few vining ones thrown in for good measure. Most of them have beautifully colored flowers in various shades of red, orange, and yellow, with coral-reds in the great majority.

There are only three vining or scrambling kinds, and our present subject is the best-known and most attractive of them. It is distinct from all other aloës in the ciliate or fringed collar formed by the base of the leaf as it clasps the stem. It also climbs to the greatest height, plants have been found going up twenty feet into the surrounding shrubbery. It is sometimes used as a trellis or fence vine, to which its habit of growth renders it very suitable. It has been found in flower at all seasons of the year; its coral-colored spikes of bloom, although not overly plentiful, stand up like little candles. It is, as are all of its relatives, of easy culture in any well-drained soil. While it may grow reasonably well in a pot, it attains better form when planted in the ground, although this may only be done in large greenhouses or in the open in the Southwest.

The climbing aloë is a shrubby plant with a sarmentose, scandent stem up to twenty feet or more long and about one-half inch, more or less, in diameter, often branching at the nodes, the branches subverticillate, only the terminal one to two feet usually bearing leaves, although the new shoots are usually leafy for about three feet. The leaves are linear-lanceolate, four to six inches long and one-half to three-fourths of an inch broad, very fleshy and smooth, spreading to recurved, bluish green, the clasping portion collar-like and ciliate with firm narrowly triangular teeth one-eighth of an inch long, the leaf margins armed with firm whitish teeth which gradually disappear towards the apex. The inflorescence is a simple raceme eight to twelve inches long, arising laterally from a leaf-axil near the apex of the stem, twenty- to thirty-flowered when grown out-of-doors, often as few as twelve when grown

under glass, the lower three to five inches nearly bare, but with few small bracts; each flower of the raceme is subtended by a small, papery white bract which is a little shorter than the pedicel. The perianth is an inch to an inch and a quarter long, tubular with a slight enlargement at the throat, scarlet, with the spreading portion of the lobes yellowish green; the three outer divisions united for the lower one-quarter of an inch, the three inner ones completely free, but enclosed within the tube formed by the outer ones. The six stamens are in two series, the three inner ones maturing a little ahead of the three outer ones, the anthers protruding barely an eighth of an inch from the flowering tube. The pistil has a six-grooved ovary, a long slender style with the stigma exerted an eighth to a quarter of an inch from the perianth tube after anthesis. The fruit is an oblong capsule three-fourths of an inch long and about half as wide, the three cells dehiscing to discharge the many black seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Top of a branch, with inflorescence. Fig. 2.—Perianth laid open, to show the two series of divisions.



ZEPHYRANTHES TREATIAE

ZEPHYRANTHES TREATIAE

Native of southeastern United States

Family AMARYLLIDACEAE

AMARYLLIS Family

Zephyranthes treatiae S. Watson, Proc. Amer. Acad. **14**:300. 1879.
Atamasco treatiae Greene, Pittonia **3**:187. 1897.

About Easter time every year the bushy meadows and wooded swamps of the Piedmont and coastal regions of the southeastern states are studded with small white lilies in great quantity. They seemingly spring from nowhere, but on close observation one will detect the slender, grasslike leaves and not far underground the bulbs of these fairy-lilies, Easter-lilies, or Atamasco-lilies, as they are variously called. True harbingers of spring are they—*Zephyranthes* (flower of the west wind) the botanist who gave them their botanical name called them—since it is Zephyr, the west wind, that brings the spring according to the ancients, although the south wind probably has a hand in it also, not to speak of the returning sun.

The Atamasco-lilies of the southeastern states, formerly considered as one species, now prove to be separable into three, the Florida material representing two distinct entities quite unlike those of the more northerly range.

Unfortunately, they are not winter-hardy much north of their natural range, which extends into southeastern Virginia, and so, in the North, they must be treated as pot plants for the cool greenhouse. Under these conditions, they take readily to culture, planted in any good garden soil, usually eight to ten in a six-inch pan. Allowed to rest in the winter, they are pleasant to see in the early spring. They may also be treated as summer bulbs, set in the open ground in May, and lifted after the first frost for storage indoors during the winter.

Zephyranthes treatiae is a perennial herb whose leaves and flower scape arise from an ovoid, brown-tunicated bulb about three-quarters of an inch long and a half inch in diameter. The bright green, narrow-linear leaves are four inches to a foot long, half cylindrical and blunt-edged with a blunt tip. The flower scape is about the same length as the leaves and bears a solitary flower subtended by a lanceolate, two-cleft spathe about an inch long. The perianth tube is light green, with a suffusion of the green color into the lower part of the flower, the remainder of which is white, sometimes with a pink tinge. The perianth lobes are narrowly elliptic varying to oblanceolate, two and a half to three inches long, recurved-spreading above the middle and

forming a fully spread flower nearly three inches across. The stix stamens are fastened to the perianth-tube, but the filaments are free above; the stamens are bright yellow. The pistil is about two inches long, bearing the three stigma-lobes at its apex; the ovary is stipitate, inferior, developing into a depressed-globose, three-lobed capsule about a half inch in diameter, containing numerous black, wafer-like seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Two flowers and a leaf. Fig. 2.—A bulb with several leaves. Fig. 3.—A ripe capsule.



CHRYSANTHEMUM ARCTICUM

CHRYSANTHEMUM ARCTICUM

Native of Arctic Regions

Family CARDUACEAE

THISTLE Family

Chrysanthemum arcticum L. Sp. Pl. 889. 1753.

We are so prone to think of chrysanthemums as brightly colored flowers of the fall garden that it is with surprise many people learn that the white daisies are also chrysanthemums. Actually, there is not one, but a group of species with daisy-like white flowers, some of which are frequently grown in gardens, all easily cultivated, and possessing an ornamental value of their own. When one sees a garden chrysanthemum in its single form, the relationship is obvious.

Several alpine and arctic species are known as daisies, as well as the more familiar field weeds and the garden types called shasta daisies. There are also the shrubby kinds from the Canary Islands, known as marguerites or florists' daisies.

The true arctic daisy, the subject of our present illustration, is not very well known except as a rock garden plant. It is exceedingly hardy and easily grown in good garden soil and is recommended as a front border plant because of its low growth and decorative foliage. It grows usually up to six inches tall, rarely to fifteen. The taller—fifteen inches or more—and more commonly grown border plant, often called *C. arcticum*, is more correctly called *C. yezoense*. In this latter plant, the ray flowers are sometimes pink and usually even the white-rayed types fade to pink with age.

The Arctic daisy is a fibrous-rooted herbaceous perennial up to fifteen inches tall. The leaves are dark green, somewhat fleshy in texture, the blades up to an inch and a half long (averaging a half inch), wedge-shaped, often broadly so, crenately toothed or incised at the summit, sometimes three- to five-lobed, the uppermost small and linear, not at all or shallowly toothed, all tapering downward into a petiole up to two and a half inches long, but usually much shorter. The involucre is hemispherical and flattened, one-half to three-fourths of an inch across, the involucre bracts broad lanceolate to oval, green at the center with wide, brown, papery, and somewhat erose margin, in two or three overlapping series. The ray florets are white, pistillate and fertile, one-half to seven-eighths of an inch long, two- or three-toothed at the blunt apex. The disk florets are yellow, fertile, the tube usually shorter than the throat, the spreading lobes short-lanceolate. The

achenes are all similar, black with light striations, the pappus absent.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE Fig. 1.—A flowering stem. Fig. 2.—A leaf.



IRIS GRAMINEA

IRIS GRAMINEA

Native of Central and Southern Europe

Family IRIDACEAE

Iris Family

Iris graminea L. Sp. Pl. 39. 1753.

In the quest for the more spectacular-flowered kinds of irises and the improvement of the bearded hybrids with their rainbow colors, gardeners have overlooked or forgotten some of the more modest-flowered kinds. Certainly some, if not all of these have their value as horticultural subjects, especially for those who like to have something "different" in their gardens. Of course, these less showy-flowered sorts, having been for so long a time banished from gardens, are very difficult to obtain. However, if the demand for them were sufficient, they could be imported and made available.

Our present subject is one of these lesser-known and much-maligned plants. True, it is not spectacular, but as a border plant it is worth growing, not only for its scent reminiscent of a ripe green-gage plum, but for its tufts of foliage and for the value of its flowers as cut subjects. It is easily grown in any good garden soil, forming a clump of bright green foliage with the flowers usually partly hidden by the overlapping leaves. Growth tends to go away from the center in all directions, and an open hollow is formed, since the older parts of the root die away. By using it as a front-of-the-border foliage accent, and dividing every third year, the flowers are not so hidden, and the clumps do not form the central hollow area. Scattered or occasional plantings along a path are perhaps better, for there one may look down upon this iris and so appreciate its full charm.

Iris graminea is a smooth, perennial herb, arising from a closely caespitose rootstock, forming large, dense clumps. The leaves are grasslike, equitant, deep green on one side and bluish on the other, strongly veined, one to three feet long. The flowering stem is much shorter than the leaves, being only nine or ten inches tall, with two leaflike bracts which overtop the terminal two-flowered spathe. The flowers are individually on pedicels an inch to an inch and a half long. The perianth has a spread of two and a half to three inches, its tube so short as not to be noticeable. The outer divisions of the perianth, known as sepals or falls, have an orbicular blade about a half inch across, lilac or whitish with prominent dark veinings, the claw or haft broad-elliptic, a little broader than the blade and separated from it by a constriction, dull yellow but often so heavily veined with purple that the ground color is inconspicuous, but the yellow midvein extending into the

base of the blade. The inner perianth parts, known as petals or standards, are about an inch and a quarter long, spoon-shaped with a narrow claw, bright lilac. The style branches are arched-spreading, the same length as the claw of the sepals which they almost completely conceal, lilac becoming paler towards the base, the two terminal appendages upturned, shallowly toothed. The three stamens with brown filaments are completely concealed under the style branches. The inferior ovary is oval, six-wing-angled, developing after fertilization into a rotund-ovoid capsule with six strong, winglike ridges.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering stem. Fig. 2.—A sepal. Fig. 3.—A petal. Fig. 4.—Fruiting inflorescence.



AEONIUM DECORUM

AEONIUM DECORUM

Native of Canary Islands

Family CRASSULACEAE

STONECROP Family

Aeonium decorum Webb ex Bolle, *Bonplandia* 7:241. 1859.
Sempervivum decorum Christ, *Bot. Jahrb.* 9:161. 1888.

Those of us who are accustomed to gardening in the eastern United States are familiar with different kinds of *Sempervivum* under the common name of hen-and-chickens. We are not, however, familiar with the Mediterranean and Canary Islands group that is now separated into the genus *Aeonium*, and is such a mainstay in southern California gardens. These plants, highly succulent in character, with their huge inflorescences and shrubby growth, have a horticultural use and beauty of their own. Some of them, with cabbage-like rosettes, are even spectacular, though short-lived. Being tender to frost and having their main period of growth and flowering in the winter, they are of little use in the East except in a cool greenhouse. Their period of dormancy in the summer is also against their use, even as outdoor bedding plants, in our climate.

Most of the species are native to the Canary Islands, with a few in the Azores, adjacent Africa, and some other islands. In their natural haunts, they grow on cliffs and barren rocky places at various altitudes. In all, there are about thirty-four species and some hybrids, nearly all of which have been introduced to cultivation and make very satisfactory pot plants, especially in their winter-growth period.

Our present subject is one of the kinds of medium size. When grown out-of-doors, the red edging of the leaves make *A. decorum* an attractive small shrub, and the pale pinkish flowers which, however, are rarely seen, add to the attractiveness. Grown under glass, the red is not at all prominent, and the flowers are more nearly white with only a pink midvein.

All the aeoniums are easily propagated by cuttings, rooted in sand and then planted in any well-drained soil, or, under outdoor conditions in California, inserted without roots into the place where they are to grow.

Aeonium decorum is a much-branched, smooth subshrub, forming a loose bush a foot or two high and the same width. The stem and branches are roughened with rhomboidal leaf-scars on the lower parts and with hard grayish white, spreading scalelike excrescences on the upper parts. The leaves

are in loose rosettes at the end of branchlets, green, smooth and shining, with a red edge; often the whole leaf is tinged with red when grown in strong sunlight; oblanceolate to obovate in outline, tapered to the base, the margin with short, curved, toothlike cilia. The flowering stems are upright, a foot to a foot and a half long, pinkish in the sunlight, but greenish under glass, finely downy as are the branchlets, the stem, and branches bearing leaflike bracts. The flowers are very short-stalked in racemose-scorpoid placement on the branches of the inflorescence. The calyx-lobes are about one-eighth of an inch long, triangular to lanceolate. The corolla lobes are lanceolate and acute, three-eighths of an inch long, pinkish in bud; when expanded, white with pink midrib. The stamens, on white filaments, are a little shorter than the petals. The carpels are white, slightly downy and erect, a bit shorter than the stamens, the styles pink-tipped.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—An inflorescence. Fig. 2.—A flower laid open to show floral parts $\times 2$. Fig. 3.—A rosette of leaves at a branch tip.



CARPINUS JAPONICA

CARPINUS JAPONICA

*Japanese Hornbeam**Native of Japan*

Family BETULACEAE

BIRCH Family

Distegocarpus carpinus Sieb. & Zucc. Flor. Jap. Fam. Nat. 2:103. 1846.*Carpinus japonica* Blume, Mus. Bot. Lugd.-Bat. 1:308. 1850.*Carpinus carpinus* Sargent, Gard. & For. 6:364, pl. 56. 1893.*Carpinus carpinoides* Mak. Bot. Mag. Tokyo, 26:391. 1912.

Among our native hardwood trees, two are noted for the hardness of their wood. Both are indiscriminately called ironwood or hornbeam, although they belong to two different genera. One, *Ostrya virginiana*, should always be called hop-hornbeam to distinguish it and call attention to the hoplike fruiting bodies. The other, *Carpinus caroliniana*, is easily recognized by its dark gray, smooth bark with irregular, muscle-like swellings, running lengthwise on the trunk and branches, whereas *O. virginiana* has thin-scaly bark, strongly suggesting a young elm.

There are about twenty-six species of *Carpinus*, mostly Asiatic, with four of their number in Japan and one each in Europe and North America. Of this number, two of the Japanese species have the same kind of shreddy bark as *Ostrya*, the remainder have the usual smooth bark. These two with shreddy bark have been separated by some botanists as the genus *Distegocarpus*, but the characteristics on which the distinction has been made do not appear important enough for generic segregation.

Our present subject, one of these two with shreddy bark, is a common forest tree in the Hakone and Nikko Mountains on the island of Hondo. There it grows forty to fifty feet tall, with a trunk twelve to eighteen inches in diameter. In cultivation it has a tendency to make a more shrubby growth. It was first introduced to cultivation in England in 1879 by Charles Maries, but was soon lost and introduced again by C. S. Sargent into the Arnold Arboretum, from whence plants were sent to England in 1895, this time having more permanent results.

The Japanese hornbeam is a tree forty to fifty feet tall in its native home, with a trunk twelve to eighteen inches in diameter, the trunk and branches clothed in a dark gray, furrowed and scaly bark. The branches are slender, at first covered with long pale hairs, later clothed in a dark red-brown bark

marked with pale, oblong lenticels. The winter-buds are acute, half an inch long, covered with light brown, papery scales. The leaves are ovate, three to four inches long and an inch and a half broad, tapering into a long point, the margins coarsely double-serrate, dark green above, paler beneath, with eighteen to twenty-four pairs of veins which are slightly hairy below and deeply impressed on the upper surface. The leaf stalks are one-half to one inch long, hairy; the stipules linear, acute, papery, and hairy, about an inch long. The male inflorescence is a laterally borne catkin an inch to an inch and a half long, its scales about one-fourth of an inch long, hard-papery and strongly striate, each bract with three to thirteen two-forked stamens. The female inflorescence is a terminally borne catkin, about three-fourths of an inch long, on a slender woody stem, with the outer, papery bracts soon falling; each fertile bract subtending two flowers, each of which is subtended by two bractlets, the individual flowers consisting of a minute ovary, a short style, and a deeply two-cleft stigma. The fruit is a conelike catkin closely resembling a hop, with toothed, closely imbricated bracts, each bract with a basal lobe almost encircling the nutlets, which in turn is subtended by a bractlet. The nutlets are ovoid, deeply ten-grooved, about three-sixteenths of an inch long.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A twig with unfolding buds and a male catkin in anthesis. Fig. 2.—A male bract with stamens $\times 4$. Fig. 3.—A Stamen $\times 6$. Fig. 4.—Tip of a twig showing female catkin. Fig. 5.—A female bract and two florets $\times 4$. Fig. 6.—A female floret $\times 6$. Fig. 7.—A mature fruiting catkin and leaf. Fig. 8.—Two scales and fruit. Fig. 9.—Mature seeds and their bractlets $\times 3$. Fig. 10.—A nutlet $\times 3$.



LOBELIA PALUDOSA

LOBELIA PALUDOSA

*Swamp Lobelia**Native of Southeastern United States*

Family LOBELIACEAE

LOBELIA Family

Lobelia paludosa Nutt. Gen.N.Am.Pl. 2:75, 1818.

To the wild-flower lover the name lobelia immediately brings to mind the brilliant red of our native cardinal-flower. To the horticulturist it brings to mind some hybrids and several other showy red-flowered lobelias of the tropics, as well as a common blue edging plant; to the professional botanist and to the amateur with a wide knowledge of plants the genus as a whole comes to mind, including, as it does, plants ranging from low creepers through all different sizes, and culminating in the spectacular tree lobelias of the Central African mountains.

It is interesting to note that while lobelia flower colors are in various shades of blue, violet, and purple over most of the world, it is only in the Western Hemisphere that there are red-flowered kinds. There is a similar situation in columbines, where red-flowered species also occur only in the Western Hemisphere. There are, of course, many kinds with pale-colored flowers, inconspicuous as compared with the bright-colored ones, and all are of equal interest to the botanist.

Our present subject is one of the pale-colored lobelias of no horticultural value, but botanically interesting by reason of its close relationship to the water-lobelia (*L. dortmanna*), an aquatic species of Europe and northern North America, of which it is a southern "cousin." It grows in the coastal swamps from Delaware to Florida and west to Louisiana, in company on the Gulf Coast with the showy, bright pink-flowered *Coreopsis nudata*, a rare endemic species of the Florida, Georgia, Alabama region, and the water-button, *Sclerolepis uniflora*, as well as several kinds of pipewort (*Eriocaulon*) and *Lachnocaulon*, swamp *Helenium*, and other lesser-known swamp plants.

The present plate was made from plants collected near Foley, Alabama, in 1930, and brought to flower in the greenhouses of The New York Botanical Garden the same year.

The swamp lobelia is a scapose perennial herb, glabrous in all its parts. The basal leaves vary from linear to linear-spatulate (rarely broader), one

inch to ten inches long, the margins smooth or shallowly scalloped. The flower-scape is eight to thirty inches tall, bearing a few widely spaced leaf-like bracts on its lower part, the upper part bearing a raceme of pale blue or whitish flowers, each about one-half inch long. The five calyx-lobes are lance-shaped to linear, about one-eighth of an inch long, the margins with shallow teeth or sometimes smooth. The corolla is strongly bilabiate, with the tube open on the upper side, the two upper lobes about half the length of the three lower and larger ones which are puberulent on the lower half. The five stamens, with ciliate filaments, are united at the tip into a ring around the stigma, the anthers bearded at the tip. The ovary is two-carpellate, half inferior, the lower part immersed in the campanulate hypanthium. The fruit is a rotund capsule which dehisces apically to discharge the minute, yellow-brown seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Flowering portion of inflorescence. Figs. 2-3.—Basal leaves. Fig. 4.—Corolla removed to show the androecium, calyx and hypanthium $\times 3$. Fig. 5.—Stamens and calyx removed to show the pistil $\times 3$.



EPIDENDRUM DIFFORME

EPIDENDRUM DIFFORME

Native of Tropical America

Family ORCHIDACEAE

ORCHID Family

Epidendrum difforme Jacquin. Enum. Pl. Carib. 29. 1760.
Epidendrum umbellatum Sw. Prodr. Veg. Ind. Occ. 121. 1788.

There are many terrestrial orchids native within the continental confines of the United States; but the orchids of epiphytic habit, which are the plants more popularly thought of as "orchids," are few in number within our boundaries. There are only about twenty-five different ones, all but one of them confined, as a wild plant, to Florida, and none of them commonly seen. These orchids, however, are widespread and plentiful in the West Indies, Central America, and northern South America.

Taken as a whole, *Epidendrum* is one of the largest genera of orchids, having upwards of five hundred species, confined to the Western Hemisphere. It is also unique in having the greatest range of variation as to habit and habitat of any genus of orchids. Many botanists have made attempts to separate *Epidendrum* into several genera, but variations are such that all the characteristics used in separation prove weak upon consideration of all the species involved. It is therefore best to consider the entire group as one polymorphic genus.

Our present subject is one of those species which occur in southern peninsular Florida, where it grows on trees in cypress swamps and low woods. It becomes widespread and more common southward in the tropics.

Epidendrum difforme is an epiphytic perennial herb, four to fourteen inches tall. The stems are leafy, the leaves bright green, elliptic-oblong with blunt, unevenly notched apex, one to three inches long and one-half inch broad. The inflorescence is an umbellate terminal cluster of light green flowers. The median sepal is oblanceolate-elliptic, about one-half inch long, the two lateral sepals oblique to scimitar-shaped, the same length as the median ones. The two lateral petals are oblanceolate, about half an inch long. The lip is broadly reniform to orbicular-reniform, three-lobed, the two lateral lobes much larger than the minute, notched middle one, the lip as a whole one-half inch across and only half as long. The elongate column is completely adnate to the claw of the lip. There are four pollinia, two in each anther cell. The fruit is a hanging, six-ribbed capsule, oblong-ellipsoid in shape, about one-inch long and half an inch in diameter.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Tip of a flowering stem. Fig. 2.—A Median sepal $\times 2$. Fig. 3.—A lateral sepal $\times 2$. Fig. 4.—A lateral petal $\times 2$. Fig. 5.—The lip and column $\times 2$. Fig. 6.—A fruiting plant.

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AND
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"the income and accumulations from which shall be applied to the founding and publication, as soon as practicable, and to the maintenance (aided by subscriptions therefor), of a high-class magazine bearing my name, devoted exclusively to the illustration by colored plates of the plants of the United States and its territorial possessions, and of other plants flowering in said Garden or its conservatories; with suitable descriptions in popular language, and any desirable notes and synonymy, and a brief statement of the known properties and uses of the plants illustrated."

The preparation and publication of the work has been referred to Mr. Edward Johnston Alexander, Associate Curator.

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THEVETIA PERUVIANA

THEVETIA PERUVIANA

Yellow Oleander

Native of Tropical America

Family APOCYNACEAE

DOGBANE Family

Cerbera thevetia L. Sp. Pl. ed. 2. 304. 1762.
Cerbera peruviana Pers. Syn. Pl. 1:267. 1805.
Thevetia nereifolia Juss.; Steud. Nom. Bot. Phan. 180. 1821.
Thevetia peruviana K. Schum. in E. & P. Nat. Ph. 42:159. 1895.
Thevetia thevetia Millsp. Field Mus. Publ. Bot. 2:83. 1900.

Visitors to the tropics and subtropics usually see many strange and beautiful plants whose beauty of foliage and flower overshadow those of more temperate climates. Among those that are more strange than beautiful is the lucky-nut or yellow oleander, as it is called in Florida. In form of foliage, it is similar to the oleander, but is a much lighter green, and the salmony yellow flowers show it to be something different. When the oddly triangular fruits develop, the difference is even more marked. In Central and South America, it has some relatives with larger and more open, bright yellow flowers and large, round, apple-like fruits, which contain the same triangular seed embedded in a white, juicy, and sweet pulp. These more showy-flowered ones are little known horticulturally, but are very worthy plants for tropical gardening. The one that is well known, our present subject, grows lustily in a rich sandy soil, making an attractive evergreen shrub six to eight feet tall and about the same width. The yellow oleander may be propagated by seed or cuttings.

Natives of the tropics regard the shrub as poisonous. There is a superstition that the seeds bring luck when carried in one's pocket.

The yellow oleander is a shrub to thirty feet, the trunk and branches clothed in a smoothish gray bark, all parts of the plant containing a milky, poisonous sap. The leaves are very numerous, evergreen and shining, linear to narrow-lanceolate, bright fresh green in color. The inflorescence is a few-flowered cymose cluster borne in the axils of the upper leaves, the flowers individually with pedicels one to two inches long. The calyx is cleft almost to the base into five linear, spreading sepals, one-eighth to one-fourth of an inch long. The corolla is two to two and a half inches long, with a green tube one-half to five-eighths of an inch long, the expanded portion broad funnel-form and only half-spreading, with five broad pleats green on the outside, the lobes between the pleats and the entire inside pale orange or pinkish yellow in color; the free part of the corolla consists of five obovate-dolabriform lobes, the orifice of the throat closed by five woolly scales inserted above the stamens. The five anthers are small, lanceolate, attached to the summit of the corolla

tube, and not cohering. The pistil has a two-lobed, capitate stigma, a long slender style, and an ovary of two separate carpels containing two to four ovules, and surrounded by an annular fleshy nectary. The fruit is a large drupelike syncarp, triangular in form, about an inch and a half wide, three-quarters of an inch long and a half inch thick, the hard bony endocarp with a fleshy or leathery covering, two-celled, with two to four large acute seeds.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering stem. Fig. 2.—Portion of corolla, laid open to show stamens. Fig. 3.—Style and stigma $\times 2$. Fig. 4.—Mature fruit. Fig. 5.—A seed.



ARISTOLOCHIA FIMBRIATA

ARISTOLOCHIA FIMBRIATA

Native of Southern South America

Family ARISTOLOCHIACEAE

BIRTHWORT Family

Aristolochia fimbriata Cham. Linnaea 7:210, pl. 6f2. 1832.*Aristolochia ciliata* Hook. Bot. Mag. pl. 3756. 1839.*Aristolochia ciliosa* Benth. in Maund, The Bot. 2, pl. 96. 1838.

It seems as if it were a rule in the floral world that nearly all maroon-colored flowers are ill-scented. Since they are specially constructed for pollination by carrion-eating insects (in one case by bats), it is not so strange that they should have this odor. This is especially so in the Family of Birthworts, to which Family the dutchman's-pipe and wild-ginger belong. In the genus *Aristolochia* there is a great variety of fantastic flower forms as well as plant forms. The flowers vary in size from an inch or less to over a foot across, and the plants vary from tiny herbs to large shrubs and vines which climb high into the trees.

Our present subject is a weak-stemmed, sprawling rather than climbing vine. It is readily grown from seed and grows best in a cool greenhouse. It was originally introduced to cultivation in the Glasnevin Botanic Gardens, Dublin, in 1836 from seed sent from southern Argentina by T. Weedie, although it had been named four years earlier from specimens sent by F. Sellow from southern Brazil. The older name given it takes precedence.

Aristolochia fimbriata is an herbaceous perennial with a weak sprawling stem, vinelike in appearance but not climbing. The leaves are alternate, with petioles an inch to an inch and a half long, the blades orbicular-reniform with deeply cordate base, dark green above with silvery markings along the main veins, pale glaucous green beneath. The flowers are borne on pedicels shorter than the petioles. The perianth is about an inch and a half long, the lower third bladdery-inflated, sharply bent, and tapering abruptly into a slender green tube, the upper third expanded into a reniform-cordate limb which is brownish green outside, dark purple-brown inside, and covered with a network of greenish yellow veins, the margin fringed with long, fleshy, gland-tipped hairs. The six stamens are linear, firmly attached to the short, stout style opposite each lobe of the six-lobed stigma. The ovary is completely inferior, forming the upper twisted portion of what appears to be the flower stalk. The fruit is an ellipsoid capsule, about three-fourths of an inch long and a half inch in diameter.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering stem. Fig. 2.—Perianth in vertical section. Fig. 3.—Stamens and pistil $\times 3$. Fig. 4.—A mature fruit.



SISYRINCHIUM STRIATUM

SISYRINCHIUM STRIATUM

Native of Chile and Argentina

Family IRIDACEAE

IRIS Family

Sisyrinchium striatum Smith, Ic. Pl. Rar. pl. 9, 1792.
Sisyrinchium lutescens Lodd. Bot. Cab. pl. 1870, 1832.
Marica striata Ker-Gawl. Bot. Mag. pl. 701, 1804.

To those of us familiar with the blue-eyed grass that is a grassy field and meadow plant or even a lawn weed, it may be somewhat of a surprise to find that there are relatives which are quite good garden plants. Those that are best suited for this purpose are mostly natives of southern Chile and adjacent Argentina. They are hardy in the Pacific Coast States and only south of Washington in the East. They are not in general cultivation in this country, but would be well worthwhile as an out-of-the-ordinary border plant in the sections where they are hardy.

Of the entire group, the most noteworthy and perhaps the best for horticultural purposes is the subject of our present plate. It was a little-known border plant before World War I and appears to be even less known at present. Seed, however, could probably be obtained should sufficient demand for it arise.

The plants are very easy to grow in any good garden soil, preferably light in texture, well-drained, and in a sunny exposure. They develop into large clumps, looking much like the clump of a narrow-leaved iris, out of which arise many flowering stems one to three feet tall, the upper half to two-thirds of which are filled with the pale yellow flowers from June until well into the fall. Treated much like bearded irises, their long period of bloom is a desirable trait in a border plant. The seed is best sown in the fall, and if there is no freezing by the following June the plants should reach flowering size. They also seed freely in a favorable location.

Sisyrinchium striatum is a fibrous-rooted, perennial herb, smooth in all its parts. The basal leaves are sword-shaped, equitant, ten to twelve inches long or, in very robust plants, to eighteen inches long, one-fourth to one-half of an inch wide. The flowering stem is one to three feet tall, two-edged, narrowly winged, twelve to thirty inches tall; the leaves below the flowering portion similar to the basal ones, but gradually becoming shorter up to the first bracts of the inflorescence. The flowering portion is about a foot long, the flowers borne in terminal and lateral fascicles, each fascicle subtended by

a one-valved spathe containing many flowers, each flower in the axil of a transparent bract. The pedicels are about a half inch long, well-exserted from the spathe. The perianth is companulate, with a tube one-fourth of an inch long and a widespreading limb an inch across, fugacious, the lobes somewhat obovate, abruptly tipped, the three outer wider than the three inner ones, straw-yellow above, the outside purple-striate, the inside of the tube with small red spots. The three stamens are united into a tube nearly one-quarter of an inch long, the filaments separating at the apex so that the stamens are alternate with the three lobes of the stigma. The ovary is inferior, oblong, ripening into thin-walled, papery, three-valved, oblong capsule about a quarter of an inch long, containing numerous black, nearly globular seeds with an irregular network of prominent veins on the surface.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—An inflorescence. Fig. 2.—Portion of stem showing a cauline leaf. Fig. 3.—Two perianth lobes, one of each series. Fig. 4.—Gynoecium and Androecium $\times 3$. Fig. 5.—A seed capsule.



SCABIOSA JAPONICA

SCABIOSA JAPONICA

Native of Japan

Family DIPSACACEAE

TEASEL Family

Scabiosa japonica Miq. Ann. Mus. Bot. Lugd.-Bat. 3:113, 1867.

Many old-fashioned garden flowers have been given such attention by modern breeding and improving methods that their faces have been "lifted" into garden beauties which so far surpass their ancestors as to render it difficult to understand how some of the old-timers persisted so long in popularity.

One old-fashioned plant, however, has been hardly changed, and that, the sweet scabious of great-grandmother's garden, is still the same pleasantly scented pincushion flower it has always been. The flower color, however, though very variable, is always rather pale, except for the black-purple form. It is a good standby for cutting, as the flowers are freely borne and, being long-stemmed and long-lasting, are excellent for arrangements and bouquets.

While the commonly grown annual kind is still the most popular, there are some perennial species deserving attention. One of these, *Scabiosa caucasica*, has become a standard border perennial, and its attractive blue flowers make it a welcome addition to the garden.

Another perennial one, our present subject, is taller growing and has more strongly colored flowers, but for some reason has never become well known though introduced to gardens about sixty years ago. It is a hardy perennial, and the bright blue-purple flowers, borne on long stems, make it an attractive subject. Since its flowers in September and October, a season during which good cut flowers are becoming scarce, it would be worth the effort of re-introduction into American gardens where flowers of this color other than asters are not very commonly seen.

The plant grows readily from seed. When sown in frames or indoors in March or April, and if set into the border as the season permits, it will flower in the fall. Seeds sown in the border at a later date may not flower the first year.

Scabiosa japonica is a hardy perennial herb, soft-hairy in all its parts, arising from a stout rootstock. It makes a bushy, branched plant, two to three feet tall, with many long-stemmed blue-purple flower heads. The stems are dichotomously branched and the branches again branched, the many

dark gray-green, cut leaves making a good foil for the flowers. The leaves are opposite, the basal ones long-petioled, those of the stem subsessile; the blades pinnately cut into seven to nine lobes, the lower lobes oblong-linear and entire, the upper and terminal lobes again pinnatisect, hairy on the veins beneath and on the margin. The flowering peduncles are up to a foot long and covered with soft hairs. The involucre consists of two series of very dissimilar bracts; those of the outer series lanceolate, up to three-eighths of an inch long; those of the inner series short-triangular, barely one-eighth of an inch long, all soft-hairy. The flower heads are one and a half to two inches across, each floret subtended by a spatulate, acute and hairy bractlet. The florets are hairy outside and of two different kinds; the marginal ones a half inch long, spreading flat and with three or four lobes, bright blue-purple; the inner ones barely one-fourth of an inch long, funnel-form, with four or five unequal blunt lobes, pale purplish lavender. The four stamens are much exserted, the filaments long and slender, with brown anthers. The long slender style is tipped by a capitate purplish stigma. The calyx is composed of two series; the outer or involucre tubular and ten-ribbed, adnate to the inferior ovary and with a free cup-shaped portion with triangular-toothed margin, enlarging in fruit into a short papery ring; the inner or true calyx consists of five purplish triangular lobes, each tipped with a strong, stout purple-tipped bristle. The fruit is an oblong-ellipsoid achene with ten broad, hairy ribs, and crowned by the papery corona of the involucre and the hardened calyx.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—An inflorescence and a cauline leaf. Fig. 2.—A central floret $\times 4$. Fig. 3.—A mature seed head. Fig. 4.—A seed $\times 4$.



ONICIDIUM CEBOLLETA

ONCIDIUM CEBOLLETA

(Plate 797)

Native of Tropical America

Family ORCHIDACEAE

ORCHID Family

Epidendrum cebolleta Jacq Sel. Stirp. Amer. 230. pl. 131. f2. 1763
Oncidium cebolleta Swartz, in Vet.-Akad. Handl. 21:240. 1800.

One of the largest genera of orchids in the Western Hemisphere is the genus *Oncidium*, with some four hundred species, containing plants ranging in size from tiny miniatures to some with flower sprays nine or ten feet long. In this conglomeration, a small group of less than a dozen species stands out distinctly by reason of the cylindrical leaves that characterize its members. One of these, the subject of our present plate, is widespread in the American tropics. It is very variable in size of both flower and leaf, as well as in a few variations too minor for separation into other species.

Oncidium cebolleta is rarely grown except as a collector's item, as it is not showy in flower. It does best in a warm house, potted in either osmundine (fern root-fibers) or a mixture of osmundine and live sphagnum. It flowers during the winter and spring months. In its natural range, it occurs in its various forms throughout the West Indies, Southern Mexico, and across Central America into Northern South America.

The name *cebolleta* refers to the onion-like leaves.

Oncidium cebolleta is an epiphytic plant, usually growing in large clusters on the trunk or branches of trees. The pseudo-bulbs are cylindrical, barely three-eighths of an inch long, each bearing a solitary, cylindrical, tapering leaf up to sixteen inches long, deeply grooved on the upper side; the leaf dark green, often with purplish spots. The inflorescence is a few-flowered loose panicle, two to three feet long including the peduncle. The flowers are variable in size, up to one or one and a half inches in diameter. The sepals and the two lateral petals are similar in length, the sepals oblong-obovate, the petals linear-oblong, both dull yellow spotted with red-brown, about a half inch long; the lip is bright yellow, three-lobed, with brown markings at the base of the lobes; the middle lobe is clawed at the base, the blade round-reniform, deeply notched at the apex; the lateral lobes are oblong-obovate, widely spreading, one-fourth the size of the middle one; the crest is a raised, rounded plate at the base of which are two large teeth with some smaller ones on each side. The column is free from the lip, yellow with brown spots at the top, the small, round column-wings yellow.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Portion of an inflorescence. Fig. 2.—Base of a flower, showing the column and crest of the lip $\times 3$. Fig. 3.—The leaves and peduncle base.



CLEMATIS CRISPA

CLEMATIS CRISPA

*Pine-hyacinth**Native of Southeastern United States*

Family RANUNCULACEAE

BUTTERCUP Family

Clematis crispa L. Sp. Pl. 543. 1753.
Viorna crispa Small, Fl. SE. U.S. 1330. 1903.

The swamps and wet woodlands of the southern Coastal Plain and outer Piedmont are the home of many showy and attractive flowers, some of them restricted only to that area in their wild form, and not taking kindly to cultivation because of certain peculiar soil and moisture requirements. There are others which are very amenable to cultivation and are improved, or at least somewhat changed by the process. One of these latter is our present subject, which with its bluebell-like form of flower and hyacinth-like fragrance has been in gardens almost since its discovery in the early 1700's. Hybrids between it and other species are sometimes seen in collections.

Our plant is native from southeastern Virginia to Florida and West to Texas. In its native haunts, it climbs over shrubs and into small trees to a height of about ten feet, often less, and its fragrance and flower-form have given rise to some of its common names such as blue-jasmine, pine-hyacinth, and swamp-bluebells.

Some botanists separate the group of species which contains *C. crispa* into the genus *Viorna*, distinguished by the urn-shaped or bell-like flowers, but since there are intermediate species which tie the groups together, it appears to be best not to divide the genus *Clematis* into the several genera that may be made by the different groups.

The pine-hyacinth is a woody vine climbing by means of the twisting leaf-stalks and tendrils to a height of about ten feet. The stem is covered with a light brown, loose-fitting, thin bark. The leaves are opposite, twice ternate, the leaflets long-petiolate, with five developed leaflets, broad-ovate to broad-lanceolate, the terminal ones often reduced to tendrils, the large lateral ones sometimes two- or three-lobed. The flowers, one to two inches long, are borne at the end of the stem or branch, or sometimes on lateral branchlets. The peduncles are one to six inches long and bear at the apex a solitary flower. The calyx consists of four valvate petaloid thick sepals, each with a showy thin marginal dilation on the spreading or slightly recurved upper half. There are no petals. The numerous stamens have short, densely hairy filaments, the long slender anthers hairy on the midvein. The numerous pistils are borne

in a loose head, the styles long, slender and silky-hairy. The fruit is a cluster of suborbicular flattened achenes with long silky-hairy tails which sometimes become smooth.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—Flowering stem and leaves. Fig. 2.—Stamens, front and side view $\times 3$. Fig. 3.—Pistil $\times 3$. Fig. 4.—A fruiting head. Fig. 5.—An individual achene.



Mary E. Eaton

AECHMEA SELLOANA

AECHMEA SELLOANA

Native of Southern Brazil

Family BROMELIACEAE

PINEAPPLE Family

Aechmea selloana Baker. Bromel. 60. 1889.

Air-plants of the pineapple family are becoming increasingly popular as house plants, since it has been shown that they can survive in the overheated homes of the present day. Their hard papery-textured leaves and their ability to cope with hot air, provided they have moisture in the cup formed by the leaves, give them the means wherewith to do this. As an added attraction, they eventually flower, the inflorescences having odd combinations of colors in shades of red, yellow, green, and violet, after which the individual that has flowered dies, but usually leaves basal offsets which continue the plant. Even in dying, the process is so long drawn-out that the decorative value is not immediately lost, but may last for months after the flowers are gone.

In the genus *Aechmea* the flowers are mostly violet-blue or yellow, and the inflorescence is set off by rose-colored or red bracts.

Our present subject is not very colorful in flower, as both bracts and flowers are yellow, but the rosette of leaves is a pleasing shade of green, and decorative as such. It is native to the State of Santa Catarina in southern Brazil and was first made known to science from the collections of F. Sellow.

Aechmea selloana is an epiphytic, acaulescent plant, usually with a caespitose habit of growth, its numerous strap-shaped leaves closely overlapping in their lower portions and forming a vase-like rosette to retain water. The leaves are up to a foot long, with a broadly dilated, clasping base, strap-shaped, bright green, smooth and shining; the margins with small, sharp teeth widely spaced, closer towards the tip of the leaf which is abruptly contracted into a sharp cusp. The inflorescence is borne on a dark red scape about the same height as the leaves, bearing several white, translucent, papery scales an inch or two long and closely appressed. The flowers are borne in a dense, conelike, short-cylindrical spike, each floret subtended by an ovate-lanceolate, sharp, taper-pointed, red bract as long as or somewhat longer than the calyx. The flowers are sessile, a little more than one-half inch long; the sepals are joined for half their length, barely one-eighth of an inch long, the free part broad-ovate with transparent margins and rounded apex terminating in a slender brown bristle; the corolla is twice the length of the calyx, its three lobes oblong, rounded at the apex, concave, each with two scales at-

tached on the inside a bit above the base; the stamens and slender style are included within the scarcely opening corolla. The fruit is a berry enclosed within the enlarged calyx and capped by the persistent dried corolla.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—An inflorescence on its scape. Fig. 2.—Upper part of a leaf. Fig. 3.—A floret and subtending bract. Fig. 4.—A sepal $\times 2$. Fig. 5.—A petal showing the inner side with its two scales and included stamen $\times 2$. Fig. 6.—The ovary and pistil with a sepal $\times 2$. Fig. 7.—Two stamens $\times 2$. Fig. 8.—A mature fruit $\times 2$.



ONCIDIUM PUMILUM

ONCIDIUM PUMILUM

(Plate 800)

Native of Southern South America

Family ORCHIDACEAE

ORCHID Family

Oncidium pumilum Lindl. Bot. Reg. pl. 920. 1825.

Within the large genus *Oncidium* there are a number of small-growing species, some of which are real miniatures. Most of them have flowers which are large for the size of the plants, but such is not the case with our present subject. Its leaves, five or six inches long, would indicate medium-sized flowers; instead, they are the smallest in the genus and are borne in a dense inflorescence containing over a hundred tiny, but perfect flowers. This inflorescence varies from three inches to a foot in length and, when in flower, is quite showy, set, as it is, against the dark green or purplish, often purple-spotted leaves.

O. pumilum was introduced into cultivation in England in 1825, when it was first flowered in the collection of Dean William Herbert at Spofforth, to whom it had been sent by one of his collectors in Rio de Janeiro, who had found it growing on the trunk of a ceiba tree. It was later found in large tufts on the trunks of other kinds of trees and in many localities in southern Brazil and Paraguay. As with many oncidiums, it is easily grown in a warm house; and when in good health, it flowers irregularly during our summer months.

The genus *Oncidium* has increased remarkably from five species, when it was first founded in 1800, to over four hundred at present, and is widespread throughout tropical and subtropical America from southern Florida to southern Uruguay. It varies as much in habitat as it does in size of plant and flower, so that often it requires experimentation to find the cultural requirements for a given species. Many, however, have proved quite amenable to culture and are long lasting when properly grown.

Oncidium pumilum is an epiphytic plant with closely clustered leaves on a short, creeping rhizome. The leaves are two to six inches long, somewhat obliquely turned by a sharp twist at the base, oblong, thick and leathery, dark green, usually with purple spots. There are no pseudobulbs. The inflorescence is three to six inches long, in a robust plant sometimes twice that length, bearing very many tiny flowers barely one-fourth of an inch in diameter. The sepals and lateral petals are united at the base, oblong-spatulate, incurved at the apex, yellow with purple-brown mottlings. The lip is

three-lobed, yellow, the disk with a four-parted crest. The column is purple-brown, with long, dirty brownish white, spreading-decurved wings on each side.

EDWARD J. ALEXANDER

EXPLANATION OF PLATE. Fig. 1.—A flowering plant. Fig. 2.—A flower, back view $\times 2$. Fig. 3.—A flower, front view $\times 2$. Fig. 4.—The column $\times 4$. Fig. 5.—Pollinia $\times 4$. Fig. 6.—Anther $\times 4$.

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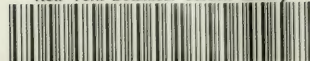
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